REMARKS

By the above actions, the specification and claims 1-6 have been amended. Additionally, accompanying this response under separate cover is a certified copy of applicants' German priority application. In view of these actions and the following remarks, further consideration of this application is now requested.

With regard to the formally matters raised by the Examiner, the term "system" has been changed to --apparatus-- in all of the claims and the corrections to claim 1 noted by the Examiner have been implemented. Thus, the objections to the specification and claims should now be withdrawn.

All of the claims were rejected under 35 U.S.C. § 103 as being obvious over the combined teachings of the International application of Köhne in view of the German application of Evers; as indicated in the above amendment to the specification, International application of Köhne has resulted in U.S. Patent No. 6,793,693. To the extent that this rejection relates to the claims as now presented, it should be withdrawn for the following reasons.

As is pointed out in paragraph [0009] of the present application, and now clearly reflected in amended claim 1, the invention combines a number of features to obtain a particularly advantageous effect. As a result of the high injection pressures, which are possible due to the pressure impulse injection means, an improved atomization of the fuel takes place with an additional atomization effect occurring by spontaneous fuel vaporization at the nozzle outlet because the fuel already has been heated to a high temperature due to preheating. As a result, particularly with heating of the air introduced into the mixture formation area "complete evaporation and homogeneous mixing of the fuel with the air occurs" (paragraph [0013]; claims 4 & 5). Furthermore, since the fuel heater is located in the area of the fuel line between the changeover valve of the pressure impulse injection device and the nozzle (claim 2), the changeover valve is not exposed to high temperatures and, as a result, can be designed to be less complex and more economical" (paragraph [0011]). Still further, as noted in paragraph [0017], in order to achieve good mixture formation for diesel fuel, the fuel heating means is located in the fuel line between the changeover valve and the nozzle and heats the fuel up to a temperature at which the vapor pressure of the fuel is determined by the pressure holding valve (amended claim 3).

In contrast, in all of the embodiments described in the Köhne et al. patent, the preheating that is performed is of the oxidized fuel-air mixture. This is in direct contrast to the present invention which heats the fuel prior to formation of the oxidized fuel-air mixture. While there is a nominal statement to the effect that "[a]nother form of heat introduction by fuel preheating is possible" (column 8, last sentence of the U.S. Köhne et al. patent), there is no description whatsoever as to where or how or to what extent this preheating should take place and their detailed teachings concerning heating of the fuel-air mixture would have no direct applicability to implementation of their merely nominally mentioned possible fuel preheating. However, as noted above, the present invention goes beyond merely preheating of the fuel and involves the particular location of the preheating means and the temperature/vaporization pressure produced to achieve "spontaneous fuel vaporization at a nozzle outlet of said nozzle."

As for the Evers et al. reference, it is submitted that it has no direct relevance to either the present invention or the Köhne et al. patent. Evers et al. relates to a vehicle heater with a burner, fuel being delivered to the combustion are by pressure pulse injection. Firstly, why would one of ordinary skill in the art look to vehicle heaters for a suggestion as to how fuel should be delivered, not to a combustion chamber, but to a mixture formation chamber, of a fuel cell apparatus? Logically, one would expect formation of a homogeneous fuel-air mixture to involve a uniform supply of fuel, not an intermittently pulse supply. In Evers et al., a pulsed supply works because the fuel is being supplied to a flame zone at intervals sufficient to prevent the flame from extinguishing, but such has little relevance to mixture formation in the Köhne et al. patent, and the pressure pulse injection works in the present invention because the fuel is heated to a temperature/vapor pressure that achieves "spontaneous fuel vaporization" as the fuel exits the nozzle, something not taught by either the Köhne et al. patent or the Evers et al. reference. The distinctions and associated advantages are even further amplified by the dependent claims which reflect the other significant aspects of the invention indicated above.

Thus, in view of the foregoing, it should now be apparent that the present invention is both novel and nonobvious relative to the prior art applied by the Examiner no matter how these two references might be viewed in combination with one another. As such, the outstanding rejection under § 103 should be withdrawn and such action is hereby requested.

While this application should now be in condition for allowance, in the event that any issues should remain after consideration of this response which could be addressed through discussions with the undersigned, then the Examiner is requested to contact the undersigned by telephone for that purpose. In this regard, the Examiner's attention is directed to the new correspondence address and telephone number indicated below and on the accompanying Change of Address notice.

Respectfully submitted,

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